APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,254	11/12/2003	David Flynn	HSJ920030243US1	6869

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John L. Rogitz
Rogitz & Associates
Suite 3120
750 B Street
San Diego, CA 92101

EXAMINER
TZENG, FRED

ART UNIT	PAPER NUMBER
2651	

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *12 November 2003*.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-18* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-18* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *12 November 2003* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All b) ☐ Some * c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____.

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date *11/12/2003*.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-18 are presented for examination.

Specification

2.   The lengthy specification has not been checked to the extent necessary to

determine the presence of all possible minor errors. Applicant's cooperation is

requested in correcting any errors of which applicant may become aware in the

specification.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   Claims 1, 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Hussein

(USPN 6,285,521).

RE claim 1, Hussein discloses a HDD **(see figure 1 or column 3 lines 65-66;**

i.e., the hard disk drive 30), comprising: at least one write channel including at least

one write gate **(see figure 1 or column 5 lines 42-50; i.e., the write channel 68**

including write gate WG2); and control circuitry encoding write control bits for

controlling the write gate to selectively enable writing data bits associated with a servo

pattern onto at least one disk **(see figure 1 or column 5 lines 42-60 and column 4**

lines 34-35; i.e., the servo controller 98 encoding write control bits for controlling

the write gate WG2 to selectively enable writing data bits associated with a servo

pattern onto disk 46).

RE claim 2, Hussein discloses that the write channel is used during operation to

write user data to the disk **(see figure 1 or column 5 lines 8-13; i.e., the write**

channel 68 is used during operation to write user data to disk surface of disk 46).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Hussein (USPN 6,285,521).

RE claim 3, Hussein discloses the invention substantially as claimed.

However, Hussein does not specifically disclose that the control circuitry encodes

two bits of a ten bit parallel bus to indicate whether the write gate should enable writing

one or more of the remaining eight bits of the bus to disk.

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify the control circuitry to encode two bits of a ten bit input

parallel bus to indicate whether the write gate should enable writing one or more of the

remaining eight bits of the bus to a disk since the examiner takes Official Notice of the fact that it is notoriously old and well known in the data storage art to modify a combinational circuit to encode any selected bits out of a range of input bits into a binary pattern for enabling or activating the remaining number of bits.

RE claim 4, Hussein discloses the invention substantially as claimed.

However, Hussein does not specifically disclose that the control circuitry encodes four bits of an eight bit parallel bus to indicate whether the write gate should enable writing one or more of the remaining four bits of the bus to disk.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the control circuitry to encode four bits of an eight bit parallel bus to indicate whether the write gate should enable writing one or more of the remaining four bits of the bus to disk since the examiner takes Official Notice of the fact that it is notoriously old and well known in the data storage art to modify a combinational circuit to use any number of data bits to represent an enable signal out of a selected data string.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8.   Claims 5, 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hussein (USPN 6,285,521) in view of Bryant et al (USPN 6,785,075), hereafter as Bryant.

RE claims 5 and 16, Hussein discloses the invention substantially as claimed.

However, Hussein does not specifically disclose that the control circuitry determines a write delay to a next timing mark based on a current timing mark, the time delay including a clock cycle component and a clock phase component, the write channel using the write delay to write the next timing mark and associated portions of the servo pattern to disk.

Bryant teaches that the control circuitry determines a write delay to a next timing mark based on a current timing mark **(see column 6 lines 60-67 and column 8 lines 19-30 and figure 5 and column 8 lines 40-44; i.e., the programmable delay circuit 172 determines/creates a write delay between a current timing mark and next timing mark outputted by clock generator phase locked loop circuit 168)**, the time delay including a clock cycle component and a clock phase component **(see column 7 lines 24-27; i.e., the delay of clock phase or clock timing)**, the write channel using the write delay to write the next timing mark and associated portions of the servo pattern to disk **(see column 8 lines 8-44 and column 3 lines 24-29; i.e., the write channel 186 using the write delay determined by the programmable delay circuit 172 to write next timing mark/field or servo field to disk surface 106)**.

Hussein and Bryant are combinable because they are from the same field of endeavor. It would have been obvious to one having ordinary skill in the art at the time

the invention was made to modify the Hussein invention by including the programmable

delay circuit 172 from Bryant for determining a write delay between a current timing

mark and a next timing mark for the write channel to use for writing the next timing mark

and associated portions of servo pattern to disk in order to keep the information

currently written aligned in time and coherent in phase and frequency with information

previously written on the disk as expressly stated at column 2 lines 47-54 of Bryant.

RE claim 12, Hussein discloses the invention substantially as claimed. Hussein

discloses a system **(see figure 1; i.e., the system 30)**, comprising: a hard disk drive

controller **(see figure 1 and column 4 lines 56-59; i.e., the disk controller 80)**; at

least one disk onto which the controller writes user data using at least one write

channel, the write channel including a write gate **(see column 4 lines 56-59 and

column 5 lines 4-13, 42-60 and figure 1; i.e., the controller 80 writes user data

using write channel 68 to disk 46, the write channel 68 including a write gate

WG2)**, gate control means for selectively enabling and disabling the write gate while the

write channel remains energized **(see column 5 lines 42-60; i.e., the servo controller

98 functioned as the gate control means for selectively enabling and disabling the

write gate WG2 while the write channel 68 remains energized)**.

However, Hussein does not specifically disclose means for, at least prior to

providing the system to the user, writes a servo pattern on the disk.

Bryant teaches a self-servowriting system that writes clock fields aligned in time

and coherent in phase and frequency to servo pattern and clock fields previously written

on a disk drive (see column 1 lines 14-18). This system self writes servo patterns on disk before the system can be actually used by an user for storing user data.

Hussein and Bryant are combinable because they are from the same field of endeavor. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Hussein by including the self-servowriting system from Bryant for self-servowriting servo patterns on a disk before the disk can actually be used for storing user data in order to cut down the costs for manufacturing a hard disk drive. Because writing servo patterns on a disk in a disk drive by self-servowriting through using the disk drive's internal read/write head costs much less than writing servo patterns by using an external servo writer.

RE claim 13, Hussein discloses that the gate control means include write control bits **(see column 5 lines 48-50, 58-60; i.e., the servo controller 98 enables write gate WG2 by asserting write control bits)**.

RE claim 14, Hussein in view of Bryant discloses the invention substantially as claimed.

However, neither Hussein nor Bryant specifically disclose that two write control bits of a ten bit parallel bus establish write control bits to indicate whether the write gate should enable writing one or more of the remaining eight bits of the bus to disk.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the control circuitry to encode two bits of a ten bit input parallel bus to indicate whether the write gate should enable writing one or more of the remaining eight bits of the bus to a disk since the examiner takes Official Notice of the

fact that it is notoriously old and well known in the data storage art to modify a combinational circuit to encode any selected bits out of a range of input bits into a binary pattern for enabling or activating the remaining number of bits.

RE claim 15, Hussein in view of Bryant discloses the invention substantially as claimed.

However, neither Hussein nor Bryant specifically disclose that four bits of an eight bit parallel bus establish write control bits to indicate whether the write gate should enable writing one or more of the remaining four bits of the bus to disk.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the control circuitry to encode four bits of an eight bit parallel bus to indicate whether the write gate should enable writing one or more of the remaining four bits of the bus to disk since the examiner takes Official Notice of the fact that it is notoriously old and well known in the data storage art to modify a combinational circuit to use any number of data bits to represent an enable signal out of a selected data string.

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10.   Claims 6-11, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Bryant et al (USPN 6,785,075), hereafter as Bryant, in view of Hussein (USPN

6,285,521).

RE claim 6, Bryant discloses the invention substantially as claimed. Bryant

discloses a method for self-writing a servo pattern to a disk using a write channel

intended for subsequently writing user data **(see column 1 lines 16-18 and column 3**

lines 1-9 or figure 4), comprising: receiving a servo pattern defined by a stream of data

bits **(see column 6 lines 26-33; i.e., reading the reference servo fields).**

However, Bryant does not specifically disclose that associating write control bits

with the servo pattern, values of the write control bits indicating whether a write gate

associated with the write channel is enabled or disabled.

Hussein teaches using servo controller 98 encoding write control bits for

controlling the write gate WG2 to selectively enable writing data bits associated with a

servo pattern onto disk 46 **(see figure 1 or column 5 lines 42-60 and column 4 lines**

34-35).

Bryant and Hussein are combinable because they are from the same field of

endeavor. It would have been obvious to one having ordinary skill in the art at the time

the invention was made to modify the Bryant by including the servo controller 98 from

Hussein for encoding write control bits for selectively controlling a write gate to enable

data bits writing associated with a servo pattern onto a disk in order to improve the

system performance of a hard disk drive. Because using a write channel to selectively

enable or disable a write gate through write control bits can decrease recovery time to

resume data read/write operation after an idle period **(see column 2 lines 30-32 in Hussein)**.

RE claims 7-9, Bryant in view of Hussein discloses the invention substantially as claimed.

However, neither Bryant nor Hussein specifically teaches that a write control bit is associated with at least one data bit, or associated with one and only one data bit, or associated with at least two data bits.

It would have been an obvious matter of design choice to make a write control bit to be associated with between the choice of at least one data bit, or one and only one data bit or at least two data bits, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose, 105 USPQ 237 (CCPA 1955).*

RE claim 10, Bryant discloses writing the servo pattern on the disk after the disk has been sealed in a housing **(see column 1 lines 61-67 and column 2 lines 1-6; i.e., the self servo writing is achieved after the disk has been sealed in a hard disk drive housing)**.

RE claim 11, Bryant teaches that determining a write delay to a next timing mark based on detecting a current timing mark **(see column 6 lines 60-67 and column 8 lines 19-30 and figure 5 and column 8 lines 40-44; i.e., the programmable delay circuit 172 determines/creates a write delay between a current timing mark and next timing mark outputted by clock generator phase locked loop circuit 168)**, the time delay including a clock cycle component and a clock phase component **(see**

column 7 lines 24-27; i.e., the delay of clock phase or clock timing), using the write

delay to write the next timing mark and associated portions of the servo pattern to disk

(see column 8 lines 8-44 and column 3 lines 24-29; i.e., the write channel 186

using the write delay determined by the programmable delay circuit 172 to write

next timing mark/field or servo field to disk surface 106).

. RE claim 18, Bryant discloses the invention substantially as claimed.

However, Bryant does not specifically that at least one write gate in a write

channel, the write gate being controllable using write control bits generated by the

control circuitry to selectively enable writing data bits associated with a servo pattern

onto at least one disk.

Hussein teaches that at least one write gate in a write channel **(see figure 1 or**

column 5 lines 42-50; i.e., the write channel 68 including write gate WG2), the write

gate being controllable using write control bits generated by the control circuitry to

selectively enable writing data bits associated with a servo pattern onto at least one disk

(see figure 1 or column 5 lines 42-60 and column 4 lines 34-35; i.e., the servo

controller 98 encoding write control bits for controlling the write gate WG2 to

selectively enable writing data bits associated with a servo pattern onto disk 46).

Bryant and Hussein are combinable because they are from the same filed of

endeavor. It would have been obvious to one having ordinary skill in the art at the time

the invention was made to modify the Bryant by including the servo controller 98 from

Hussein for encoding write control bits for selectively controlling a write gate to enable

data bits writing associated with a servo pattern onto a disk in order to improve the

system performance of a hard disk drive. Because using a write channel to selectively

enable or disable a write gate through write control bits can decrease recovery time to

resume data read/write operation after an idle period **(see column 2 lines 30-32 in**

Hussein).

Claim Rejections - 35 USC § 102

11.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by
> another filed in the United States before the invention by the applicant for patent or (2) a patent
> granted on an application for patent by another filed in the United States before the invention by the
> applicant for patent, except that an international application filed under the treaty defined in section
> 351(a) shall have the effects for purposes of this subsection of an application filed in the United States
> only if the international application designated the United States and was published under Article 21(2)
> of such treaty in the English language.

12.   Claim 17 is rejected under 35 U.S.C. 102(e) as being anticipated by Bryant et al

(USPN 6,785,075), hereafter as Bryant.

RE claim 17, Bryant discloses a HDD **(see figure 1 or column 4 line 37; i.e.,**

the disc drive 100), comprising: at least one write channel configured for writing user

data to a disk **(see figure 4 or column 8 lines 8-10; i.e., the write channel 186**

configured for writing user data to disk surface 106); and control circuitry

determining a single write delay from a prior timing mark to indicate writing of a

subsequent timing mark and at least a portion of a servo pattern **(see column 6 lines**

60-62 and column 8 lines 8-44; i.e., the programmable delay circuit 172

determines/creates a write delay between a current timing mark and next timing

mark outputted by clock generator phase locked loop circuit 168, and the write

channel 186 using the write delay determined by the programmable delay circuit

172 to write next timing mark/field or servo field to disk surface 106).

Conclusion

13.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

14.   Any inquiry concerning this communication from the examiner should be directed

to Fred Tzeng whose telephone number is 571-272-7565. The examiner can normally

be reached on weekdays from 9:30 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David Hudspeth can be reached on 571-272-7843. The fax phone numbers

for the organization where this application or proceeding is assigned are 571-273-8400

for regular communications and 571-273-7565 for After Final communications.

15.   Informal regarding the status of an application may be obtained from the Patent

Application Information Retrieval (**PAIR**) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

Fred F. Tzeng

September 05, 2005